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REMARKS

Claims 1-20 are pending.

The rejection of claims 1-20 under 35 U.S.C. 102(b) as being anticipated by Kamei is respectfully traversed.

Claim 1 recites a coaxial engine starter for starting an engine. An integrated gear support and clutch barrel unit is selectively driven by an armature of the electric motor. The unit includes a body having a gear support side and a clutch side. An epicycle gear reduction assembly is connected between the armature shaft of the electric motor and the gear support side of the body. A one way clutch is provided on the clutch side of the body to control the rotations between the armature shaft and the output shaft.

Kamei describes a prior art starter assembly of the type disclosed in Fig. 1 of applicants instant application which was labeled prior art. The Office action refers to the planetary gearing and one way clutch of Kamei (Figs. 3 & 4), but it ignores other elements of claim 1. In particular, Kamei fails to teach or suggest the integrated gear support and clutch barrel unit (referenced as element 136 of applicant's instant application). Kamei shows a DC motor having an armature 12 that is connected to a reduction mechanism 18. A first unit, namely the gear reduction mechanism 18 (located at the backward end of the starter shown in Fig. 1) includes an inner gear 18c. A sun gear 18a provided on a shaft 16 is coupled to the armature 12. The sun gear 18a operatively engages the planetary gears 18b. The planetary gears 18b are mounted on pins 1P that project from a flange 1F of a second output shaft 1(Fig. 5). A second unit, namely a roller clutch mechanism 3 (located at the forward end of the starter shown in Fig. 1) is spaced apart from the gear reduction mechanism 18 (located at the backward end of the starter shown in Fig. 1). The roller clutch mechanism 3 shown in detail in Fig. 4 is disposed in a housing defined by 3w and 3b shown in Figs. 6a-6b. A tubular section 3a of the clutch mechanism 3 includes a female helical spline 3x that mates with a

male helical spline 1a of the output shaft 1. As a result, the clutch mechanism 3 and gear mechanism 18 are not integrated as a single unit.

In the present invention, the integrated gear support and clutch barrel unit 136 includes a body having planetary gear shafts 142, 142", 142"' integrated into the body that project from the gear support side of the body. In addition, the clutch mechanism includes the clutch roller housing 158, clutch rollers 160, 160" and springs 162, 162" that are housed in the clutch side of the body. In summary, this integrated unit houses the roller and spring elements of the clutch on one side of the body and supports the planetary gears of the epicycle gear assembly on the other side of the body. This integrated unit provides for a shorter starter motor size allowing for superior packaging arrangement in an engine compartment. Other advantages are fewer parts saving on material cost as well as tolerance stack up from a variation of parts which may improves NVH characteristics.

In contrast to claim 1, the clutch mechanism 3 and gear mechanism 18, of Kamei, are two distinct units spaced apart from one another and coupled by a pair of helical splines formed on their respective shafts. This is clearly illustrated in each of the illustrations in Kamei as the gear mechanism is designated generally at 18 and the clutch mechanism is designated generally by 3. Moreover, to further support that these two units are separated apart from one another and only coupled to one another by their extended shafts, an electromagnetic switch shown generally at 2 is disposed between the gearing mechanism 18 and the clutch mechanism 3. As a result, Kamei fails to describe or teach an integrated gear support and clutch barrel unit having a gear support side and a clutch side. Therefore, claim 1 is allowable.

Claim 2 depends from claim 1 and is therefore allowable.

Claim 3 recites the reduction assembly includes a plurality of planetary gears mounted on the gear support side of the body. As discussed earlier, Kamei does not describe an integrated gear support and clutch barrel unit having a body with a gear support side and a clutch side. Therefore, claim 3 is allowable.

Claim 4 depends from claim 1 and is therefore allowable.

Claim 5 recites a plurality of shafts extending from the gear support side of the body. As discussed earlier, Kamei does not describe an integrated gear support and clutch barrel unit having a body with a gear support side and a clutch side. Therefore, claim 3 is allowable.

Claim 6 recites the clutch side of the body is defined by an annular ring extending from the body. As discussed earlier, Kamei does not describe an integrated gear support and clutch barrel unit having a body with a gear support side and a clutch side. Kamei fails to describe the annular ring as well as the clutch side of a body. Therefore, claim 6 is allowable.

Claim 7 recites the output shaft includes a clutch end that is substantially rotatably positioned within the annular ring of the body. Kamei fails to teach or describe an annular ring extending from the body and Kamei fails to teach or describe a clutch end. Therefore, claim 7 is allowable.

Claims 8 and 18 recite a plurality of rollers and biasing elements being operatively positioned between the annular ring of the body and the clutch end of the output shaft. As described earlier Kamei fails to describe an annular ring of the body or a clutch end of an output shaft. Therefore, claims 8 and 18 are allowable.

Claim 9 depends from claim 1 and is therefore allowable.

Claim 10 describes a carrier shaft operatively mated to the output shaft and axially moveable with respect thereto. Kamei fails to describe or suggest a carrier shaft. Therefore, claim 10 is allowable.

Claim 11 describes a solenoid assembly comprising a solenoid plunger operatively mated with the carrier shaft and a solenoid coil fixed to the motor body. Kamei fails to describe or suggest a carrier shaft. Therefore, claim 11 is allowable.

Claim 12 recites a coaxial engine starter for starting an engine. An integrated gear support and clutch barrel unit is selectively driven by an armature of the electric motor. The unit includes a body having a gear support side and a clutch side. As stated above for claim 1, Kamei fails to describe or

suggest an integrated gear support and clutch barrel unit. Therefore, claim 12 is allowable.

Claim 13 recites an epicycle gear reduction fitted between and operatively connecting the armature shaft of the electric motor and the gear support side of the body. Kamei fails to describe or teach a gear support side of the body of the integrated gear support and clutch barrel unit. Therefore, claim 13 is allowable.

Claims 14-15 depend from claim 12 and are therefore allowable.

Claim 16 recites a one way clutch and a plurality of planetary gear shafts, the one way clutch being provided on the clutch side of the body and the plurality of gear shafts extending from the gear support side of the body. Kamei does not describe an integrated gear support and clutch barrel unit having a body with a gear support side and a clutch side. Since Kamei does not describe the body having a gear support side and clutch side, claim 16 is allowable.

Claim 17 recites the clutch side of the body is defined by an annular ring extending from the body. The output shaft includes a clutch end being substantially rotatably positioned within the annular ring of the body. Kamei fails to describe or suggest the annular ring extending from the body or a clutch end of the output shaft and being rotatably positioned within the annular ring. Therefore, claim 17 is allowable.

Claim 19 depends from claim 19 and is therefore allowable.

Claim 20 recites a carrier shaft and a solenoid assembly. The carrier shaft is operatively mated to the output shaft and axially moveable with respect thereto. The solenoid plunger is operatively mated with the carrier shaft and a solenoid coil fixed to the motor body. Kamei fails to describe or suggest a carrier shaft. Therefore, claim 20 is allowable.

In view of the foregoing amendment and remarks, all pending claims are in condition for allowance. Favorable action is respectfully solicited.

Respectfully submitted,

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